

Nomenclatural Note

The true identity of *Astacus vitreus* Fabricius, 1775 (Crustacea, Stomatopoda)

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In 1818 Lamarck gave the name *Squilla scabricauda* (currently *Lysiosquilla scabricauda*; family LYSIOSQUILLIDAE) to the mantis shrimp, one of the best known stomatopod Crustacea of the Western Atlantic. However, for many years the name has been considered as pre-dated by the synonym *Astacus vitreus* Fabricius, 1775, which was based on a larva. The name *vitreus* has been mentioned as referring to the larval form but it has not been adopted for the adult crustacean, and *scabricauda* has been used in numerous publications. To avoid any possible confusion in November 2000 I submitted an application to the Commission seeking the suppression of *vitreus*. The case was announced in BZN 58: 1 (March 2001).

Fabricius's (1775) rather general description of *Astacus vitreus* fitted the larva of *Lysiosquilla scabricauda* and mentioned no characters that would make the synonymy impossible. The type locality of *vitreus* was given by Fabricius as 'in Oceana atlantico' which, as I showed (Holthuis, 2000, pp. 12-13), was most likely near Rio de Janeiro, Brazil, and within the range for *L. scabricauda*.

Hansen (1895) gave special attention to the identity of *Astacus vitreus*, and was sure that it was the larva of *Lysiosquilla scabricauda*, and most later authors followed him. Hansen pointed out that the correct name for the species should be *Lysiosquilla vitrea* (Fabricius, 1775) but, in his view, to adopt that specific name was absurd and would lead to unlimited confusion. He suggested that the nomenclature for adults and larvae should be kept separate. He continued to use the name *Lysiosquilla scabricauda* for the species, as have all subsequent authors even if agreeing that *Astacus vitreus* was an older synonym. Under *L. scabricauda*, Gurney (1946) referred to Hansen and noted '*Lysierichthus vitreus* is its larva'. Manning (1969), in his monographic review of the Stomatopoda of the Western Atlantic, cited *Astacus vitreus* in the synonymy of *Lysiosquilla scabricauda* with a question mark and noted (p. 33) 'Several larval forms, including *Astacus vitreus* Fabricius . . . have been identified with *Lysiosquilla scabricauda*. As all of these identifications are tentative, the names are accompanied with a question-mark in the synonymy'.

In his description of *Astacus vitreus*, Fabricius (1775) referred to 'Mus. Banks'. There are no existing type specimens of the species (see White, 1847 and Zimsen, 1964) but Wheeler (1986) recorded that Fabricius based his description on material in the collection of Sir Joseph Banks, most probably the drawing by Sydney Parkinson made during the outward journey of James Cook's first circumnavigational voyage in the *Endeavour* (August 1768 to July 1771). The drawing forms part of the collection given by Banks before 1815 to the Linnean Society of London and in 1863 passed to the British Museum and thence to The Natural History Museum, London.

Mrs Anthea Gentry (The Secretariat, ICZN) recently pointed out to me that the drawing of *Astacus vitreus* was reproduced by Wheeler (1983, p. 209, pl. 189b). It

shows enlarged dorsal and ventral views, as well as a natural sized view, and is annotated 'Cancer vitreus' and 'Sydney Parkinson pinxt 1768' on the front, and 'Coast of Brasil' on the reverse, possibly by Fabricius when he studied Banks's collection (see Wheeler, 1983, pp. 200-201).

I have recently received on loan the publication by Wheeler (1983) in which Parkinson's figures of *Astacus vitreus* were reproduced and found that the drawing represents a larva of *Alima* Leach, 1816, most probably *A. neptuni* (Linnaeus, 1768), instead of the expected *Lysiosquilla* larva. It seems clear that none of the previous authors who dealt with the nomenclature of *L. scabricauda* had seen this illustration. As noted above, Fabricius's (1775) description was rather general and fitted both species, although it now seems certain that an *Alima* larva was meant. Fabricius's (1775) description fits Parkinson's figures very well.

The first mistake in the identification of *Astacus vitreus* was made by Desmarest (1823) who synonymised *vitreus* with *Smerdis vulgaris* Leach, 1818, the latter being very similar to species of *Lysiosquilla*, judging by Leach's figure. Leach's type specimen originates from West Africa and certainly is not *L. scabricauda*.

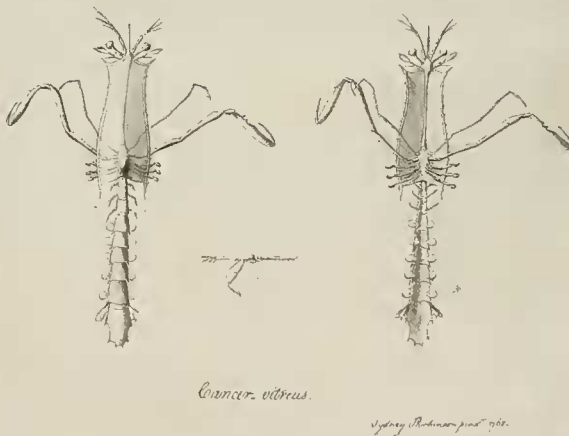
Since *Astacus vitreus* Fabricius, 1775 is not a senior synonym of *Lysiosquilla scabricauda* Lamarck, 1818 but a junior synonym of *Alima neptuni* (Linnaeus, 1768), there is no need for Commission action to conserve the name *scabricauda* and I have therefore withdrawn my application. The larval form *A. neptuni* was known as *A. hyalina* Leach, 1817 until Manning & Lewinsohn (1986, pp. 13, 14) demonstrated that the names were synonyms and adopted *neptuni*. Manning (1962) had already shown that *A. hyalina* referred to the larva of the adult stomatopod *Squilla alba* Bigelow, 1893, which Manning (1969, pp. 127-139) considered distinct from other species of *Squilla* Fabricius, 1793 and placed in the genus *Alima*. I (Holthuis, 2000, p. 18) designated the lectotype of *A. alba* as the neotype of *A. neptuni* (for which species there was no existing type material), rendering *A. neptuni* the valid name in accord with current usage. To the synonymy of *A. neptuni*, *A. hyalina* and *A. alba* must now be added *Astacus vitreus* Fabricius, 1775, judging from Parkinson's figure of the latter.

The name *Cancer neptuni* was published (p. 226) in a zoological Appendix to vol. 1 (Regnum Animale, 1766, 1767) of Linnaeus's *Systema Naturae* (Edition 12). This Appendix (pp. 223-228) was published in 1768 following vol. 3 (Regnum Lapideum, pp. 5-222) of the work. There is also a botanical Appendix to vol. 2 (Regnum Vegetabile, 1767), and a single addition to vol. 3. Part of Linnaeus's *Systema Naturae* (Ed. 12), vol. 3 (Regnum Lapideum) dealing with fossil animals (pp. 153-174) was rejected for nomenclatural purposes by the Commission in Opinion 296 (October 1954). Fitton (1978; see also Wheeler, 1991) thought that the zoological Appendix might have also been 'accidentally suppressed', but it is clear from the original application (BZN 2: 88) and subsequent comments (reproduced in the Opinion) that only the section on Petrificata was at issue, and thus *Cancer neptuni* Linnaeus, 1768 is an available name.

References

- Fabricius, J.C. 1775. *Systema entomologiae, sistens insectorum classes, ordines, genera, species*. . . . 832 pp. Flensburgi & Lipsiae.
- Fitton, M.G. 1978. The species of 'Ichneumon' (Hymenoptera) described by Linnaeus. *Biological Journal of the Linnean Society*, **10**: 361-383.
- Gurney, R. 1846. Notes on stomatopod larvae. *Proceedings of the Zoological Society of London*, **116**: 133-175.

- Hansen, H.J.** 1895. Isopoden, Cumaceen und Stomatopoden der Plankton-Expedition. *Ergebnisse der Plankton-Expedition der Humboldt Stiftung*, 2(Gc): 1-105.
- Holthuis, L.B.** 2000. Nomenclatural notes on eighteenth century Stomatopoda (Hoplocarida). *Journal of Crustacean Biology*, 20: 12-19.
- Lamarck, J.B.P.A.** 1818. *Histoire naturelle des animaux sans vertèbres*, vol. 5. 612 pp. Déterville, Paris.
- Linnaeus, C.** 1768. *Systema Naturae*, Ed. 12, vol. 3 (Regnum Lapidum), Appendix Tomi 1 (Animalium). Pp. 223-228. Salvii, Holmiae.
- Manning, R.B.** 1962. *Alima hyalina* Leach, the pelagic larva of the stomatopod crustacean *Squilla alba* Bigelow. *Bulletin of Marine Science of the Gulf and Caribbean*, 12(3): 496-507.
- Manning, R.B.** 1969. Stomatopod Crustacea of the Western Atlantic. *Studies in Tropical Oceanography*, 8: 1-380.
- Manning, R.B. & Lewinsohn, C.** 1986. Notes on some stomatopod Crustacea from the Sinai Peninsula, Red Sea. *Smithsonian Contributions to Zoology*, 433: 1-19.
- Schotte, M. & Manning, R.B.** 1993. Stomatopod Crustacea from Tobago, West Indies. *Proceedings of the Biological Society of Washington*, 106(3): 566-581.
- Wheeler, A.** 1883. Animals. Pp. 195-241, pls. 186-222 in Carr, D.J. (Ed.), *Sydney Parkinson. Artist of Cook's Endeavour voyage*. xv, 300 pp., 253 pls. British Museum (Natural History). Croom Helm, London.
- Wheeler, A.** 1986. Catalogue of the natural history drawings commissioned by Joseph Banks on the *Endeavour* voyage 1768-1771 held in the British Museum (Natural History). Part 3 (Zoology). *Bulletin of the British Museum (Natural History)*, Historical series, 13: 1-171.
- Wheeler, A.** 1991. *Caroli Linne. Systema Naturae, Editio 12, Tomus 1, Regnum Animale (1766)*. A microfiche reproduction of the author's personal annotated copy from the Linnean Society of London, with an historical introduction by Alwyne Wheeler. 15 pp. The Natural History Museum, London.
- White, A.** 1847. *List of the specimens of Crustacea in the collection of the British Museum*. viii, 143 pp. British Museum, London.
- Zimsen, E.** 1964. *The type material of I.C. Fabricius*. 656 pp. Munksgaard, Copenhagen.



Drawing of a crustacean larva made by Sydney Parkinson during Cook's first voyage, 1768-1771, named *Astacus vitreus* by Fabricius (1775). Fabricius's taxon was subsequently erroneously identified as the larval stage of the mantis shrimp, *Lysiosquilla scabricauda* (Lamarck, 1818), but is now known to be probably conspecific with *Alima neptuni* (Linnaeus, 1768). Enlarged dorsal (left), ventral (right) and side (centre) views (life size approximately 40 mm).